

– Abstract –

Effect of Local Steroid Injection as a Treatment of Carpal Tunnel Syndrome

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Objectives : Local steroid injection into the carpal tunnel is one of the several treatments in carpal tunnel syndrome(CTS). The purpose of this study is to find out the degree of symptom improvement and the change of the electrophysiologic findings of the median motor and sensory nerves after the injection.

Method : Thirty-eight cases of 22 patients aged 36 to 78 years diagnosed CTS by physical examination and electordiagnosis were studied. All patients were injected using Depomedrol 20.0mg mixed with 5.0mg 0.5% lidocaine into the carpal tunnel and repeated in 1~2 weeks up to 4 times according to the symptom relief. We measured the degree of improvement by visual analogue scale(VAS), clinical symptoms, signs, and electrophysiologic findings.

Result : Subjective symptoms were improved in 91.9% of the cases, 7.6±1.8 weeks after injection. Score of VAS was reduced significantly from 8.3±0.7 to 2.5±0.6(p<0.05), Phalen's sign and Tinel's sign were improved in 42.9% and 9.1% of cases, respectively. But, thenar weakness and atrophy did not show significant improvement. Follow up electrophysiologic findings after injection demonstrated significant decrease in median motor latency from 6.1±0.5msec to 5.6±0.3msec(p<0.05), and improvement in amplitude from 7.0±0.7uV to 7.5±0.9uV. The median sensory latency was decreased from 4.6±0.2msec to 4.4±0.2msec, and sensory amplitude increased from 14.5±2.5uV to 17.8±2.5uV with no statistical significance. Local steroid injection into the carpal tunnel significantly reduced the symptoms of CTS over 6 months with a little electrophysiologic evidence of improvement in that period.

Key Words : Carpal tunnel syndrome, Steroid injection, Electordiagnosis

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Paired Samples Test

1) 3 (13.6%), 19 (86.4%) 22, 53.7(36~78)가 16 (72.5%), 4 (18.2%) 2 (9.3%), 38, 51.6±13.1(0.5~240), 9.6(5.5~18) 36.8%(14/38) 10.4(6~18) 2) 1 26.3%, 2 31.6%, 3 23.7%, 4 18.4% 2.4 78.7% (29/38) 2 91.9%가 8.3±0.7 2.5±0.6 (p<0.05). Phalen 42.9%, Tinel 9.1% (Table2). 3) 2.84(1~6) 78.9%가 6.1±0.5msec 5.6±0.3msec (p<0.05), 7.0±0.7mV 7.5±0.9mV 가 (p>0.05). 4.6±0.2msec 4.4±0.2msec 14.5±2.5 μV 17.8±2.5 μV 가 (p>0.05). 2.49±0.12 2.84±0.07 (p>0.05). 11 4 가 (Table3).

Table 1. Clinical Data

No. of patients	22
No. of nerves	38
Sex	male : female = 3 : 19
Age(years)	36~78(mean, 53.7±1.7)
Bilateral Involvement	77%(17/22)
Symptom duration(months)	0.5~240(mean, 51.6±13.1)

Table 2. Improvement on Follow-up Examination

	improve	no change	worsen	Total
Symptoms	34(91.9%)	1(2.7%)	3(5.4%)	38(100%)
Phalen sign	15(42.9%)	18(51.4%)	2(5.7%)	35(100%)
Tinel sign	1(9.1%)	9(81.8%)	1(9.1%)	11(100%)
Electrophysiology	15(78.9%)	4(21.1%)		19(100%)

Table 3. Electrophysiologic Changes og median nerve after Steroid Injection in Patients with Carpal Tunnel Syndrome

	Injection		P-value
	Before	After	
Pain(VAS)	8.3±0.7	2.5±0.6	0.000
Motor latency(msec)	6.1±0.5	5.6±0.3	0.035
Motor amplitude(mV)	7.0±0.7	7.5±0.9	0.226
Absence of CMAP ²⁾	5.3%	5.3%	
Sensory latency(msec)	4.6±0.2	4.4±0.2	0.247
Sensory amplitude(μV)	14.5±2.5	17.8±2.5	0.145
Absence of SNAP ³⁾	29.7%	18.9%	

1) Values are mean±S.E

VAS: Visual analogue scale

2) CMAP: Compound muscle action potential

3) SNAP: Sensory nerve action potential

(flexor retinaculum) 5 68~87%, 86.4% 27~69% 가 72.5% Tinel sign 1 Phalen sign 가 (thoracic outlet syndrome) 30~60 가

가 34 (89.5%) ,

2

6.1msec, 4.6msec

가 8~94%

19-21 78%

62

가 Weiss¹⁴

6~18 13.1%가

, 59.2%가 , 27.6%

가 ¹¹

가 가 가

12-14 1,22,23 Girlanda ³¹

Weiss ¹⁴ 0.5% lidocaine

13% 39%

, Gelberman ¹²⁾ 1

78.7% , 2

91.9% . Giannini ¹⁶ 35%

, 58%

65% 73% 가

Jimenez ¹⁷

가 97%

Girlanda ¹³ 50%가 6

, 18 90%가 8% 2

10 1998 9 1999 6

가 36.8% 36 78 , 3 , 19 , 22

가 . Levine ¹⁸ 38

가 1) 51.6(0.5~

240) , 9.6(5.5~18)

72.5% 27.5%

, ^{11a} 10.4 36.8%

2) 91.9%

8.3±0.7

가 2.5±0.6 (p<0.05). Phalen 42.9%,

Tinel 9.1%

3) 5.6±0.3msec

4.6±0.2msec 6.1±0.5msec 가 (p<0.05),

4.4±0.2msec 가 가 4.6±0.2msec 4.4±0.4msec

11 4 (36%)가

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